

Oakes praised for staving off new elite

By Peter David

The failure of the Oakes report to recommend special status for polytechnics was described last week as one of its greatest virtues by two leading members of the Oakes working group when addressing a conference on the report sponsored by the National Association of Teachers in Further and Higher Education and *The Times*.

Both Mr John Bevan, deputy head of the Inner London Education Authority, and Mr Francis Cammaerts, president of NATFHE, said the decision of the group to avoid recommending a new system of elite higher education institutions was deliberate and positive. Mr Bevan said the decision was "an inherent and implicit point of quite considerable substance".

He said the report had not discussed the long-range development of higher education because it had not been asked to. But it had set up a national planning forum for public sector higher education, and recommended important revisions of the course approvals system.

Sussex 'not Balliol by the sea'

By Judith Judd

Sussex is not just Balliol-by-the-Sea, Sir Denis, Vice-Chancellor of Sussex University, has told the students' union in reply to a letter in their newspaper which said that the university's progressive traditions were being eroded under his leadership.

Answering the accusation that he intended Sussex to become just another second-rate Oxford College, he said: "Sussex is not just Balliol-by-the-Sea and it is the degree to which it is not, that gives it its power and its glory here".

He also replied to student suspicions that he did not believe in the community services committees which symbolize Sussex's progressive character. He said he had not aimed to dismantle community services but to improve their structure and management and to strengthen their autonomy.

The students said that the agreements reached in committees about rent agreements had been overruled by the university council. According to Sir Denis: "You and your student colleagues really must understand that the university is a community, including student representation, on the committees of the devolved integrated structure means."

"Or rather what it does not mean is that it does not mean that every recommendation of an element of devolved authority must automatically be accepted by the higher committees, particularly Council and Senate."

Sir Denis said he believed that the students' union was "a" but not "the" legitimate voice of students on the campus. There were other legitimate voices, individuals, students within schools and on school committees.

It is important to know the rough spread of student opinion throughout the student body, and in such circumstances it may not be too helpful simply to be faced with the one fixed position of a mandate which often precludes further student discussion of alternative courses of action."

It had not accepted the concept of paying for courses through inter-authority recommitment and it had not accepted the "misguided" views of people who advocated a polytechnic status committee modelled on university lines. Nor had it made a significant contribution to liaison with the universities—but "their time will come", he said.

Mr Bevan said nine local education authorities would face rate increases of a penny or more if the Oakes proposals for a new financing scheme were implemented unchanged. It would therefore not be sensible to implement the entire revised system in a single step. But he warned that any delay would be a significant loss to the institutions themselves.

Mr Francis Cammaerts, now viewed the decision not to give the polytechnics a special status as a major benefit. It had staved off the threat of a new elite stratum of higher education and thereby paved the way for the development of a comprehensive system of further and higher education envisaged by NATFHE.

Lease of life for teacher training body

By Sue Reid

The Advisory Committee on the Supply and Training of Teachers, the watchdog body which oversees the cut back in colleges of education, is to get a further lease of life.

Mrs Williams, Secretary of State for Education and Science, told the House of Commons in a written reply this week that ACSTT was to continue on "broadly the present pattern" when its present five-year term expired this summer. She proposed to reconstitute the committee on a broadly its present pattern in view of the valuable work which it and its sub-committees had done since its inception in 1973.

Sir Arthur Arncliffe will continue to serve as chairman after the reconstitution for an "initial period". The latest proposals are subject to consultation with the Department of Education and Science's partners in the education service. The views of other organizations and individuals concerned with teacher training and supply have been invited.

The committee was set up for an initial period of five years to advise the Government on the development and implementation of a national policy for the supply and training of teachers for maintained schools and further education institutions in England and Wales.

In fact it was forced within two years to respond to the Government's detailed plans for substantial closures of teacher training institutions and a complete rationalization of the whole area of teacher education.

Its continuation comes as a surprise to many because its valuable role as an adviser during this rationalization period is now over. The committee's terms of reference will need to be altered to reflect the new relationship with Wales, following the transfer of responsibility for teacher training and supply to the principality at the beginning of last month.

But he warned that the proposed structure could not be seen as permanent. There were many aspects of higher educational change over the next 20 years which the Oakes structure might be unable to deal with.

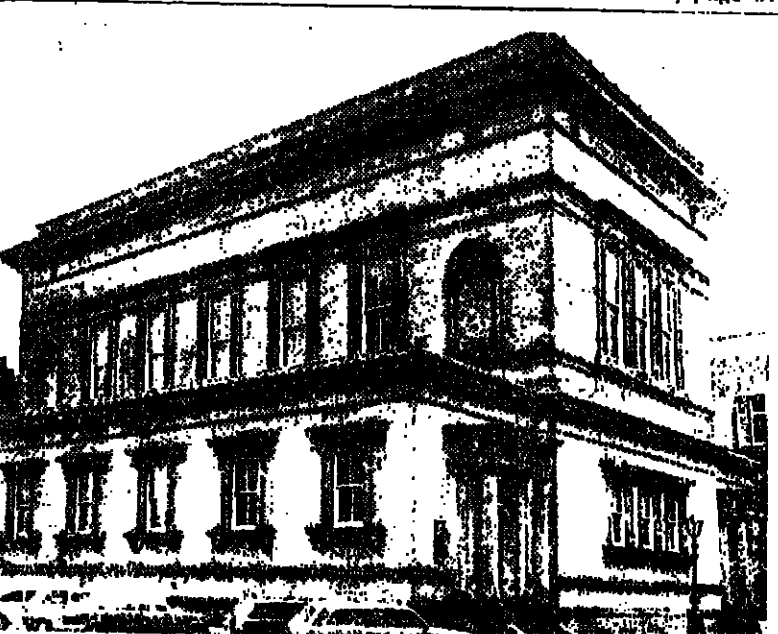
"The report," he said, "is as important as any compromise document must be. NATFHE will have reservations about many of the issues raised but with these recommendations we believe we may move forward for the next 10 or 15 years in a direction which may lead to a more generous access to higher education, to forms of it more suited to those who at present either reject it or find no satisfactory outlets in it for their own interests and activities."

Gains from the report included a real shift to local responsibility and the avoidance of more division between further and higher education, Mr Cammaerts believed. It also established a more flexible system capable of reacting quickly to changes in post-school education, and contained an assurance that

teachers would be fully involved in national and regional planning. Mr Gordon Cunningham, education officer of the Association of County Councils, warned that the report would not settle the whole future of higher education at one blow. But it would provide a better framework of accountability, and deserved a more constructive response than many of the "hot-headed, nit-picking criticisms" which had greeted it so far.

Councillor Maurice Venn, chairman of the Standing Conference of Regional Advisory Councils and a member of the Oakes group, said that the report would not have an immediately discernible effect "on the shop-floor". But it had established a proper partnership between central and local government in running higher education, he said. Other benefits would be closing off the higher education "funnel"; the creation of closed budgets for institutions and the introduction of a direct local authority contribution to their maintained institutions.

Leader, page 31



A new £80,000 classical organ, which has been under construction in Germany for three years, has now been installed at Edinburgh University's Reid concert hall, above. In the early 1970s the university's music faculty argued that such an instrument would enhance Edinburgh's musical standing and attract performers otherwise discouraged by the lack of facilities.

A firm order for the organ was placed in 1975 and the university has paid for it in instalments over three years. The organ builder, Jorgen Ahrend, is one of the two or three leading builders in the world. The university plans an opening recital on Sunday by David Lumsden, principal of the Royal Scottish Academy of Music and Drama.

Engineering starved of metal technicians

By Robin McKie
Science Correspondent

There is a shortage of technicians needed to support the engineering industry's use of metals and materials, the Institute of Metallurgical Technicians has warned. In its evidence to the Commission, the institute says that this has often led to graduates doing work that should be done by qualified technicians. "This leads to frustration and lack of recognition on both sides", its report adds.

The institute also believes that industry could make better use of its resources of qualified manpower by closer study of job content, by analysis of staff qualifications, and by encouraging employees to gain

experience by moving around within companies.

There are also factors which discourage potential students and technicians from improving their qualifications. These include:

- Difficulties in getting time off for study;
- Lack of recognition by improvement in status and salary when higher qualifications are obtained;
- Some reluctance among education establishments to cater for the most suitable courses.

Government establishments and nationalized industries could give a lead in alleviating these difficulties, the institute believes. It also emphasizes that there should be closer links between itself, companies in an area, and local colleges which

Broad welcome for new student union finance plans

The National Union of Students, the local authority associations, welcomed the official publication of this week of Government plans for revising the system of student union finance, detailed three weeks ago in *The Times*.

"The new scheme would replace the present arrangements, which union subscriptions are as part of the student grant—a two-part system combining a subscription with an extra student grant, and negotiated, directly by colleges or university authorities."

Mr Peter Coles, deputy education officer of the Association of County Councils, said the new scheme would improve the level of public money available to the universities, and students' unions handle their responsibilities and that governing bodies control the level through annual negotiations, unions of institutions do not present any automatic precedent for the whole amount of union subscriptions through the awards regulations.

The new scheme, he believed, would limit the automatic process by requiring institutions to meet part of the cost themselves. "The Council of Local Education Authorities saw this as an essential move, only at a local level that the variety of students' union needs be recognised", he said.

Mr Coles welcomed the Government's recognition of the differences between student unions in further education colleges and in higher education. The latter, he said, the former had not yet been criticised by the local authorities, but it did not seem "reasonable" that the basic level of higher education institutions of the £15-20 range.

Miss Sue Shipman, president of the NUS, praised the "important concession" of a minimum fee to further education colleges, even though it fell far short of the £15 demand for a £5 level. She expressed satisfaction that the Department of Education and Science had decided not to interfere with student union autonomy.

She said the NUS would better guarantees about the level of students' income, particularly because of the fear that Conservative local authorities might attempt to cut down the level of union funding.

Further development better courses, including refresher opportunities in study after qualifying.

Industry should help qualified technicians to meet and work with technicians in other disciplines employed in the same company, such as drawing office personnel. The report says this would then widen each group's interests and that work would be seen to be mutually supporting. The institute concludes that metallurgical technicians are not paid salaries commensurate with their knowledge and responsibilities.

"Rates of pay often compare badly with those for shop-floor workers, who have not taken opportunities to study and to qualify professionally", the report says.

East Anglia braces for student growth boom

By Judith Judd

The number of students at East Anglia University will rise by a third over the next three years—a third of the highest growth rates for any university in the country.

In his annual report to the Council, Dr Frank Thistlethwaite, the vice-chancellor, said the University Grants Committee had suggested a target of 5,000 students in 1981-82 to replace the previous target of 4,000 in 1981-82. The university now had 3,600 students.

Dr Thistlethwaite said: "Not only is the expected increase in student numbers very considerable, but the time scale within which this increase is to be achieved is exceedingly tight."

"From a position 18 months ago when forward planning seemed little more than a theoretical exercise, we have this year been faced with the urgent need to translate our strategic planning model for a university of 5,000 students into academic reality."

New appointments had been authorised to support expansion especially in the three newest schools—law, development studies, and computing studies, but there would also be some in the school of English and American studies. The planning model had reflected

the need to expand and diversify in vocational areas, said Dr Thistlethwaite. "I hold the traditional view that the primary role of a university is to educate rather than to train. However, courses of an applied and vocational nature have their place in any well-rounded university institution and I believe that now is the right time to add some of these to the basic range of theoretical disciplines which we have already established here."

Dr Thistlethwaite said that the recurrent grant settlement was very tight but though the cash given to the university for the next three years was initially to allow for much improvement in standards, there should at least be no further significant deterioration.

Turning to the debate about declining numbers entering higher education, he said universities should not neglect scholarship and research. If more resources had to go to teaching to preserve educational opportunities for young people, this must not lead to a further erosion of support for research.

Nor should any opportunity be lost now or later to restore that proper balance between teaching and research which has been seriously upset by the last five years of financial stringency."

Best salaries do not always follow best degrees—survey

The best degree may not mean the best salary, according to a survey of graduate starting salaries carried out at Southampton University. The Careers Advisory Service found that in a much sought-after group of applied sciences those with better degrees sometimes started with poorer salaries.

The service's annual report says: "Perhaps those who achieved only modest academic success had to take jobs in unattractive functions or unpopular locations, where salary inducements to compensate were higher."

The survey also found that some students with a supposedly useful degree found it as hard to get jobs as those with "academic" degrees. "One wonders whether the importance of developing the qualities of undergraduates is as widely realized as it should be."

The report comments on the decreasing percentage of first-degree graduates continuing their studies. The number starting research or further training fell to

the 1975 level. The percentage of women studying for higher degrees, however, went up.

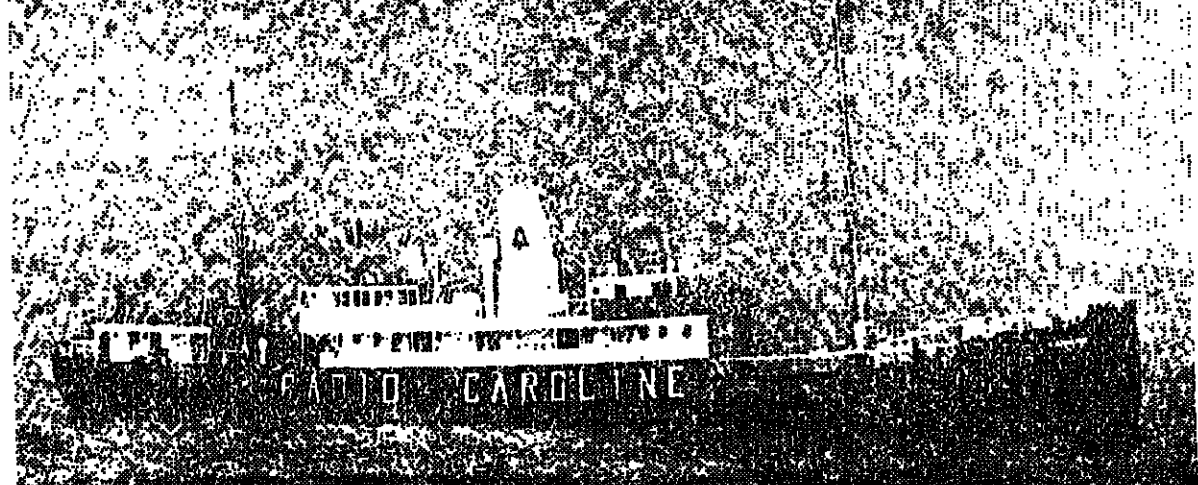
More Southampton graduates went straight into employment, fewer began teacher training courses and more were believed unemployed, though this was probably a reflection of the low figure the previous year. Manufacturing industry, chartered accountancy and commerce gained at the expense of other occupations.

The annual report of Nottingham University's Careers Advisory Board says that the prospects for graduate employment this year are better than might have been expected. The forecast of the year ahead shows a rise in demand of 20 per cent over last year.

More investment in industry is likely to lead to the shedding of labour, the report says, but a reduced labour force is likely to favour the graduate. "The social consequences will need to be carefully monitored and not least by the universities lest mere envy at their privilege be used to justify further erosion of their resources."



World Cup referee Clive Thomas, right, trains at Bath University for his grading stint in Argentina next month. Tom Hudson, left, Bath's supervisor of physical recreation and a former Olympic competitor, has supervised Clive Thomas's fitness training for the competition.



Pirates invade campus airwaves

By Peter David

Many of Britain's flourishing student radio stations are being deliberately forced off the air by pirate broadcasts from Radio Caroline, the pirate radio station based at sea outside British territorial waters.

A Home Office spokesman said this week that Radio Caroline was deliberately seeking out the wavebands allocated for students in an attempt to gain a wider student audience. University transmitters, which put out a very weak signal, are being drowned out by the powerful Caroline transmissions.

There are 15 universities and colleges with their own student radio stations. Each pays £260 a year for a Home Office licence and is allocated a frequency. Generally the stations broadcast for several hours a day, putting out music, news and features. A large proportion use the 312 metre waveband, which is now

also used by Radio Caroline. As a result broadcasts at Swansea, Lancaster, Bath, Loughborough, Warwick, Hatfield and Surrey have been interfered with or drowned out by the pirate station.

Mr Richard Courtney, chairman of the National Association of Student Broadcasting, said that attempts to contact Radio Caroline have been ignored. This meant that student stations would have to shut down or go in for the expensive business of changing frequencies.

Because the equipment used by students is fairly rudimentary, changes of frequency require considerable expenditure, Mr Courtney said. Changes of frequency also have to be approved by the Home Office and government engineers must be called in to check the arrangements.

"All radio stations will have to change their frequency in November as the result of an international agreement", he added. "If student stations change their frequencies now to avoid Caroline they will also have to change again in November. And there is no way to guarantee that Caroline will not follow us around."

Mr Courtney said that Radio Caroline advertised itself as being on 319 metres but broadcast on 312 metres although it was a less distinct waveband. One reason appeared to be an attempt to gain a student audience.

A Home Office spokesman confirmed that several university radio stations had been given permission to switch to new frequencies. But he said the Government could not allow student broadcasters to increase their power output to compete with the Caroline signal.

Mr Gareth Hamer, a student broadcaster at Bath University, said that Radio Caroline was expected to double the power of its signal later in the year.

Purchase forces OU to abandon plans for Bristol College

By Maggie Richards

Discussions about the Open University's use of a defunct training college for new full-time courses have had to be abandoned. The College of St Matthias at Bristol is now to be used by Bristol Polytechnic, which will move in September.

Tentative talks about a plan to offer OU students a period of full-time education were held earlier this year, at the instigation of the Church of England college, but the proposal has now fallen through, following the intervention of Avon County Council which offered to buy the college. After a visit from council officials, the college governors decided to explore the possibility and agreement was later reached on a price of £1.35m.

The college's principal, Mr Roger Adcock, said this week: "It is very disappointing that we are not able to go ahead with the original proposal, which was very imaginative. But there was always the prospect that the deal might not come off."

In making a decision the college governors had been faced with an "enormous dilemma", he said. "The OU proposal was quite a radical departure nationally, but the university's decision-making procedures were so lengthy that we were unable to obtain a verdict until December, 1978. We were also unsure about financial viability."

Many of the college's staff had already been transferred to Bristol Polytechnic during the rundown of teacher training. The remaining staff, however, are now likely to be employed by the polytechnic which, it is understood, is likely to be moving its departments of humanities and town and country planning to the college.

The remaining teacher training students at St Matthias will transfer to the polytechnic to complete their BEd course.

Under the terms of the OU scheme, students who had gained at least one foundation level credit towards their degrees would have been eligible for a one-year full-time course involving face-to-face tuition.

100 black Rhodesians benefit in eleventh hour funds plan

By Sue Reid

At least 100 black Rhodesian students in Britain are to get special funds from the Ministry of Overseas Development to help them continue their studies this year.

The £200,000 scheme, agreed as a "one off" measure in the past month by the ODM, the United Kingdom Council for Overseas Students Affairs, and the International Development Exchange Fund, will ensure that Rhodesian students in hardship studying full time A-level or advanced courses in this country will get their tuition fees paid and some help towards living costs.

The ODM has acted in the eleventh hour. Many of the black Rhodesian students without funds last September. The ODM has been sympathetic to the cause but both the Department of Education and Science and the Treasury have been reluctant to give the go-ahead.

A UKCOSA spokeswoman said this week that the long delay in deciding the award scheme had forced students to drop out. She said that a similar influx of students without aid was expected to arise again next September because of Rhodesian students' particular problems.

The UKCOSA and the IDEF started negotiating with the ODM about the plight of black Rhodesian students without funds last September. The ODM has been sympathetic to the cause but both the Department of Education and Science and the Treasury have been reluctant to give the go-ahead.

ILEA drops fines on polys

The Inner London Education Authority has finally dropped its controversial plan to fine two polytechnics £50,000 each for exceeding their overseas student intake quotas. Mr Ellis Hillman, chairman of the authority's further and higher education sub-committee, announced this week that the fine on the Polytechnic of Central London would be removed in light of a conciliatory resolution passed in March by the polytechnic's court.

A similar fine on Thames Polytechnic was lifted two months ago when it was made clear that the polytechnic had attempted to keep overseas numbers within the quota levels but had not been able to because of its admission timetable. Mr Hillman said this week that the fine on the polytechnic had been moved considerably from its previous position on overseas students. He attached particu-

lar importance to the March resolution passed by the polytechnic court accepting the right of the ILEA to require from PCL a policy with regard to student admissions in conformity with its black grant stipulations.

But the resolution also rejected "discrimination" against overseas students and gave rise to an exchange of letters between the authority and the polytechnic about its precise meaning. Mr Hillman said that he was still not entirely clear about the polytechnic's proposed procedures on student intake. Nevertheless, the polytechnic had been told that the fine would not be implemented "provided that, in the event, the steps being taken by the director do result in the reduction of the number of overseas students in the polytechnic to the appropriate level".

Scots adult group criticizes failures of new schooling reports

By Maggie Richards

Disappointment at some of the findings of the recent Munn and Dunning reports on Scottish education have been voiced by the Scottish Institute of Adult Education.

In its comments to the Scottish Department of Education on the Munn report, the SIAE records its disappointment at the failure to acknowledge the preparatory nature of all parts of school education.

"The concept of continuing education is foreign to it; certification has the finality of a tolling bell. It is this kind of thinking which leads children and adults to identify education with school rather than with life". The SIAE goes on to suggest that

the report ought to have given more thought to ways in which the school curriculum could embrace the community and guide pupils towards adult life.

The institute condemns the Dunning report for over-emphasizing the value of assessment, and accuses the committee of taking inadequate account of its own statement that "school and national policy should ensure that assessment does not become all-pervasive".

It adds: "The institute is disappointed that the committee should have given so little thought to the needs of adult external candidates. The maturity of these candidates demands something better than their

submission to the same external examinations as school pupils. The institute hopes that the exploratory studies on syllabuses and assessment of this important aspect."

In the institute's Yearbook 1978, Mr John Taylor, former executive officer who last month took up a new post as secretary to the Adult Education Council for Adult and Continuing Education at Leicester, reviews the past three years of adult education in Scotland.

Dealing with developments since the Alexander report of 1975, Mr Taylor says the major questions about the nature of community education are only partly answered, with concern still remaining about possible conflict between the role

of a professional community education service and the participatory, self-directing essence of the concept of community education.

He goes on to examine the implications of the Scottish development system and the expected exclusion of the higher education sector which has led to strong demands for a national higher education council.

"The real danger here is that adult education will not be replaced, since its place will be seen to be in the Council for Community Education. This highlights the limitations of the Alexander community education proposals which could eventually isolate much of adult education's present concerns

in a 'debatable land' belonging neither to higher nor to community education", Mr Taylor says.

His report also comments on the slides made during the past three years in the literacy campaign in Scotland, with over 7,000 adults appealing for help—mostly through the Scottish telephone referral service in Glasgow.

"After three years of development there is now a strong basis for widening this work into a really effective adult basic education system in Scotland," he adds.

Yearbook of Adult Education in Scotland 1978, published by the Scottish Institute of Adult Education, 57 Melville Street, Edinburgh. Price £1.25.

underline the point that none of its studies and opinion polls showed a significant level of support for any sort of moratorium on biomedical research.

Trading stamps may be readily available but the troubles mean that jobs and retraining are not.

Oxford University Press

Physical Chemistry

P. W. Atkins

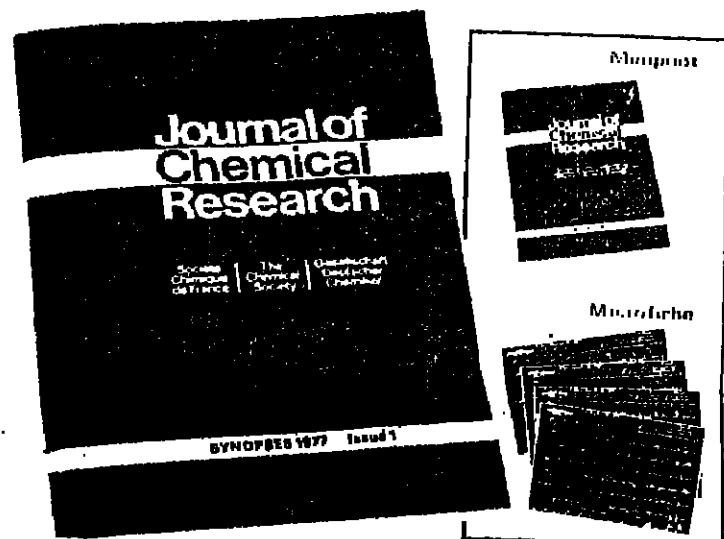
'What convinces me that this is a book that should be widely adopted, and which will be sought after by undergraduates whatever their teachers may recommend, is that the whole work is distinguished by penetrating insight allied to consistent and exceptional clarity of expression. The author comes across as a person who understands the student's difficulties and is not too proud to explain, and illustrate if necessary, all the steps. With this volume Dr Atkins has begun to do for physical chemistry what R. Feynman did for undergraduate physics.' D. M. Adams in *The T.H.E.S.*

'The publication of this major new work... is a considerable event. One must express admiration for the evidently tremendous effort Dr Atkins has put into his task—perhaps even amazement, as the task of writing comprehensively on modern physical chemistry at an advanced level has been deemed by some to be fast becoming almost superhuman. The book is truly impressive... an excellent teaching book. Learning objectives are given which specify what a student should be able to do after study of a particular chapter. Example calculations in the text are very clear, and the diagrams are outstandingly good. SI units are used throughout... Notably good and original problems, ranging from simple to difficult, are provided, with answers to the numerical questions.' *New Scientist*.

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Journal of Chemical Research was first published in 1977 under the joint sponsorship of the British, French, and German Chemical Societies as the first step in the development of a more logical system of chemical primary publications. It appears in synopsis/microform format with a journal of conventionally printed short synopses backed up simultaneously with full text in microfiche and miniprint. In addition to its founding sponsors, the journal now has the active support of other national chemical societies in the USA, Germany, France, Italy, Belgium, Norway, Austria, Sweden and Finland.

For further information and sample copies please write to Marketing Department, The Chemical Society, Burlington House, London W1V 0BN.

BOOKS

Structure and reactivity

Some Reaction Pathways of Double Bonds: I) C=C II) C=O (cassette and booklet)
by Peter Sykes
The Chemical Society, £4.75
ISBN 0 85186 929 8

This cassette is concerned with selected important reactions involving olefinic and carbonyl double bonds in organic chemistry and is the latest in a series of chemistry cassettes published by the educational techniques subject group of the Chemical Society.

Judged by the standard of this production by Dr Sykes, this method of projecting fundamental principles will have a valuable role to play in first-year of tertiary education, particularly if N and P levels are introduced. Using audio methods students will be able to consider elementary and often conceptually difficult areas of their subject at their own pace. Combination of lecture and tutorial methods with chemistry cassettes should readily identify the most important subject matter for further study in textbooks.

Together with a booklet of reaction schemes, this cassette is one of a series planned to cover the mechanism of organic chemical

reactions and continues from the earlier cassette in which the same author deals with elimination reactions and aromatic substitution in treating the reactions of double bonds Dr Sykes follows the logical progression of olefinic to carbonyl types. Using addition reactions to the olefinic double bond the importance of carbocation ion intermediates and the relationship of structure with reactivity are well covered at this level. However, it would have been useful, from the point of view of continuity in the series, to emphasize the point of divergence between aromatic substitution and addition to olefinic double bonds initiated by electrophilic reagents, free radical attack is compared with electrophilic addition reactions in a very clear presentation. The first part of the text is concluded by consideration of hydroxylation, epoxidation and hydrogenation reaction pathways.

Introduction of the mechanisms of epoxide cleavage by acids and bases in this treatment of olefinic double bonds should allow useful cross-reference in a later contribution to the series.

The second section treats reactions of the carbonyl function in aldehydes and ketones with due ref-

erence to the dominant influence of the electronegative oxygen. Cyanohydrin formation allows the author to develop the relationship between structure and reactivity, briefly introducing reaction energetics and discuss the nature of intermediate species generated by nucleophilic attack at a carbonyl group. Less satisfactory is the very brief introduction to chirality. In general the simple reactions and selected attack. Reactions involving enol and enolate intermediates receive less emphasis than would be expected from their importance in organic chemistry.

The presentation is well-paced with each side of the cassette being very topic, but a brief discussion of such important techniques as spectroscopy or fluorimetry for example should be included in these introductory chapters. In this context, the deviation of a complete chapter to acid-base equilibrium in mechanism in organic chemistry written by Dr Sykes.

This cassette can be recommended to libraries for study by first-year undergraduates at universities and polytechnics, as well as six-form scholarship students.

Robert Ramage

Shaping up

The Shapes of Organic Molecules
by N. G. Clark
John Murray, £1.85
ISBN 0 7195 2931 6

The aim of this book is to persuade students to think in three dimensions about even the simplest organic molecule or reaction. The book is divided into three sections: the molecular architecture of simple compounds, the chemical and biochemical implications of molecular geometry and the architecture of complex molecules of biological importance. Thus the compounds discussed range from methane to lysine.

Students' difficulties with stereochemistry often stem from a lack of clear understanding of the meaning of the terms they use and difficulties in drawing suitable three-dimensional diagrams. Unfortunately they will be little helped by this book. It is true that models are better than diagrams, but the latter have to be drawn and the models on drawing diagrams are given. Neither Fischer nor Newman projections are discussed, and the use of heavy and dotted lines is not mentioned. This convention would have made the diagrams in figures 36-79 accurate and clear to the student reader. In a book devoted to the study of stereochemistry I am disappointed to see diagrams illustrating the steric course of a reaction drawn in only two dimensions.

Throughout, statements are made which although they perhaps would not be misinterpreted by a knowledgeable chemist could be misinterpreted by a beginner. Thus on page 24 it is stated 'there can be an infinite number of isomeric tartaric acids; such structures, interconvertible by rotation about a single bond, are called conformations. The fact that only one of these has been isolated per enantiomeric structure means there is completely free rotation about that vertical carbon-carbon single bond'. This is misleading—no single conformation of tartaric acid has ever been isolated, also, as the author points out later 'completely free rotation' never occurs. On page 55 there is the statement 'A second strained arrangement of six singly bonded carbon atoms is the "boat" form'. The boat form may be free from angle strain but it is certainly not strainless, indeed after the author refers to the strain of repulsion between non-bonded atoms.

Clear definitions of terms such as structural isomer, conformer, and configuration—are not given, and I was surprised to find stereochemical nomenclature relegated to the appendix.

I have been especially critical of the more fundamental parts of the book for it is here that the student really learns the subject. The more advanced parts, which those can be recommended to students who have mastered and understood the fundamentals of stereochemistry.

M. F. Ansell

Sounds useful

An Introduction to NMR Spectroscopy (cassette and booklet)
by Bruce Gilbert and Richard Norman
The Chemical Society, £5.25
ISBN 0 85186 639 5

This cassette and booklet pose an immediate question as to who would find it useful. There are not many illiterate chemists among my students and colleagues, although there are some who might like to learn about NMR while washing up. The introduction on using the cassette did not allay my doubts. The advantages claimed for this system are that it is self-paced and that it can be turned off for thought or reworded so that certain sections can be repeated. Books exhibit all these advantages in a greater degree. It is easier to vary one's pace of reading and to plan back at previous material in a book than in a cassette. But there is no doubt that many people find it easier to learn from lectures and reading than solely from books.

The total content of this cassette is less than a book but more than a chapter. It is useful, although the playing time is similar. The first side is mainly concerned with proton NMR spectroscopy with a few basic principles of nuclear spin states via a discussion of chemical shifts and coupling constants to

simple structure determination. The second side deals with topics such as second-order spectra, decoupling and spectra from other nuclei.

The booklet contains 80 diagrams or 'frames', mainly spectra, but some equations. The lectures by Professor Norman on one side and Gilbert on the other, refer to these constantly. The could not in fact do the washing up while learning about NMR as one would need a look at the diagrams all the time.

The presentation has obviously been carefully thought out. Diagrams are clear, the lectures are unobtrusive voices and problems are provided with solutions. The strong emphasis on proton NMR is surely outdated. Carbon-13 spectra often illustrate basic principles more clearly. One unwelcome side effect of the cassette is that it is called a 'coupling constant' is not only standard but is also more accurate as two spectral splittings greater or less than J. The difficult task of explaining magnetic equivalence is misleadingly skirted.

A student would not find it particularly useful to own this cassette. For repeated reference a book is better. But it should be available to borrow; it covers a surprising amount of material in an understandable way.

R. M. Lynden-Bell

CHEMISTRY TEXTS from ADDISON-WESLEY

THE ESSENCE OF ORGANIC CHEMISTRY

[M. Cram and D. J. Cram]

This comprehensive organic chemistry text is directed primarily at students in the life sciences and related fields. Each topic is discussed clearly, carefully, and completely, with a large number of biological illustrations. A background in general chemistry is assumed. 512pp. illus. 1978. £ 20.00 pb. hard £31.25

Second Edition

BASIC PRINCIPLES OF ORGANIC CHEMISTRY

[D. J. Cram and M. Cram]

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Universities continued

THE OPEN UNIVERSITY

PART-TIME TUTORIAL AND COUNSELLING STAFF

Applications are invited for the following part-time posts for the 1978 academic year (to take effect from January 1979):

COURSE TUTORS, TUTOR COUNSELLORS AND ASSOCIATE STUDENT COUNSELLORS

In 1978 the University will be offering 121 courses for which tutors should be required in six broad areas: Arts, Educational Studies, Mathematics, Science, Social Sciences and Technology (including a Technology Project Course for which project supervisors will be recruited in 1979). The courses are based on an integrated structure of correspondence assignments, radio and television broadcasts and a regionally organized tutorial and counselling system.

COURSE TUTORS are responsible for commenting on and grading students' written assignments, for replying to queries about students' work and for conducting tutorials, normally at local study centres.

TUTOR COUNSELLORS have duties similar to Course Tutors in relation to the tuition of a group of undergraduate students on one of the five Foundation courses. They also have counselling responsibilities for a larger group of undergraduate students on both Foundation and higher level courses, where they are required to give study advice to individual students and to help in organizing discussion groups at local study centres.

ASSOCIATE STUDENT COUNSELLORS are responsible only for the counselling of students on the University's Associate Student Programme. These students will be following a wide variety of courses available in this programme. Associate student counsellors will be attached to a local study centre but their contact with students will take a variety of forms dependent upon geographical area and spread of students.

The time needed for a University staff varies according to individual contracts, but on average will amount to approximately one evening per week or its equivalent for most of the year. Appointments will be made on a full-time basis, but will be for one year.

Applicants should be graduates or graduates equivalent, recent teaching experience in further adult or higher education is highly desirable. Further relevant experience would also be an advantage.

To obtain application forms and further particulars send a POSTCARD to the Tutor Office, The Open University, P.O. Box 82, Milton Keynes, MK7 6AU. Early application is advised and completed application forms should be submitted to one of the University's Regional Offices by the closing date of Friday, 16th June.

It should be noted that it is likely that existing members of the tutorial and counselling staff will be reappointed to many of the posts on continuing courses. There have been no previous recruitments, however, for 15 courses to be presented for the first time in 1978.

(Note: Existing members of the University's part-time tutorial and counselling staff will be sent application forms before the end of May as a matter of course.)

University of Bristol

School for Advanced Urban Studies
Research in
Public Policy Studies

Applications are invited from candidates who wish to carry out research in the field of public policy leading to the MSc and PhD degrees in the Faculty of Social Sciences.

The School is keen to attract students interested in pursuing the analysis of public policy processes in general but candidates will also be expected to have an interest in one of the following: housing, employment, transport, the physical environment, social services, social security or health.

There is no closing date for applications, but students wishing to be nominated for SRC post awards, for which the research training programme is recognized, must have completed their application by 30 June.

Further details and application forms are obtainable from: Registration Secretary, School for Advanced Urban Studies, Rodney Lodge, Orange Road, Bristol BS8 4EA.

THE QUEEN'S COLLEGE, GLASGOW

Applications are invited for the following posts as from 1st September, 1978 (or as soon thereafter as possible):

LECTURER IN FOOD SCIENCE

LECTURER IN ACCOMMODATION STUDIES/BUSINESS STUDIES

Further details and forms of application may be obtained from: The Registrar, The Queen's College, 61, Park Drive, Glasgow, G3 6LP. Inquiries should be made by return of post to the Registrar, 61, Park Drive, Glasgow, G3 6LP, by 30 June 1978.

UNIVERSITY OF THE WITWATERSRAND

JOHANNESBURG, SOUTH AFRICA

Applications are invited for the following posts:

GRADUATE SCHOOL OF BUSINESS ADMINISTRATION

CHAIR OF ORGANISATIONAL BEHAVIOUR

The Professor of Organizational Behaviour will be involved in the following activities: the organization and teaching of courses in organizational behaviour on the MBA, Postgraduate, Personnel Management and Executive Development Programmes, and participation in research supervision.

Ideally, applicants should have a higher degree in the behavioural sciences; teaching and research experience in organizational behaviour; practical experience in organizational design and development. SALARY: Commencing salary will be determined according to qualifications and experience on the scale: R10,900 by R12,800 by R13,800 by R14,800 by R15,800 by R16,800 by R17,800 by R18,800 by R19,800 by R20,800 by R21,800 by R22,800 by R23,800 by R24,800 by R25,800 by R26,800 by R27,800 by R28,800 by R29,800 by R30,800 by R31,800 by R32,800 by R33,800 by R34,800 by R35,800 by R36,800 by R37,800 by R38,800 by R39,800 by R40,800 by R41,800 by R42,800 by R43,800 by R44,800 by R45,800 by R46,800 by R47,800 by R48,800 by R49,800 by R50,800 by R51,800 by R52,800 by R53,800 by R54,800 by R55,800 by R56,800 by R57,800 by R58,800 by R59,800 by R60,800 by R61,800 by R62,800 by R63,800 by R64,800 by R65,800 by R66,800 by R67,800 by R68,800 by R69,800 by R70,800 by R71,800 by R72,800 by R73,800 by R74,800 by R75,800 by R76,800 by R77,800 by R78,800 by R79,800 by R80,800 by R81,800 by R82,800 by R83,800 by R84,800 by R85,800 by R86,800 by R87,800 by R88,800 by R89,800 by R90,800 by R91,800 by R92,800 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LANCHESTER POLYTECHNIC
Concavity - Railing

**Short
Advanced Course
Programme in
MATHEMATICS**
**MT3: " Numerical
Methods for
Fluid Flow "**
**One-day Symposium
Tuesday, June 20,
1978**
**MT4: " Curve and
Surface Fitting "**
**One-day Course
Wednesday,
June 21, 1978**

For further details of
these and other courses
please phone 01-250 0001
The Joint Courses Unit.

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MANCHESTER
THE POLYTECHNIC
JOHN DUTTON FACULTY
OF SCIENCE
RESEARCH STUDENTSHIP
The Science Research Council

It has been suggested that the *in situ* formation of a polymeric matrix, from monomers having a functional group, such as a hydroxyl, carboxylic acid, amino, or epoxy group, and a crosslinking agent, such as an isocyanate, epoxide, or anhydride, would be a desirable method of forming a matrix under the conditions of the *in situ* polymerization. A schematic representation of this type of reaction is shown in Figure 1. The reaction of a monomer with a functional group, such as a hydroxyl, carboxylic acid, amino, or epoxy group, and a crosslinking agent, such as an isocyanate, epoxide, or anhydride, would be a desirable method of forming a matrix under the conditions of the *in situ* polymerization.

Polytechnics continued

ULSTER COLLEGE

THE NORTHERN IRELAND POLYTECHNIC

Centre for Management Education

LECTURER II/SENIOR LECTURER

Personal Management/Organisational Behaviour. The Centre has a vacancy for a Management Teacher, qualified in one of the Behavioural Sciences, with an experience-based knowledge of Personnel Management. Applicants should hold appropriate academic qualifications, should have had experience in industry or the public service and should preferably have had some relevant teaching experience.

TEMPORARY LECTURER II

(one-year appointment)

Personal Management and Industrial Relations. The Centre for Management Education requires a suitably qualified and experienced person to take part in the work of the Industrial Relations Unit for a period of twelve months. The work will involve teaching on both certificate courses and in-plant short courses.

Faculty of the Arts

TEMPORARY LECTURER II/SENIOR

LECTURER

Ceramics. Applications are invited from suitably qualified artist/designers to contribute on a short or long-term contract to the BA Honours Degree Course in Ceramics. Contributions of special interest are desirable within the following subjects:-

1. Surface decoration and 2D ideas as applied to ceramics
2. Industrial processes and their current application
3. Personal work of high quality in any particular aspect of making

4. Technical aspects and kiln building. Applications will be considered from persons wishing to teach for the academic year 1978/79 or for a term or half term. Appointments for short blocks of teaching may also be considered.

Salary will be payable at an appropriate point on the Lecturer II or Senior Lecturer scale having regard to the qualifications and experience.

Further details and application forms, which should be returned by June 2, 1978, from the Establishment Office, The Polytechnic, Newtownabbey, Co. Antrim BT37 0QB.

Salaries under review. The Polytechnic is a direct grant institution with an independent Board of Governors. It opened in 1971 and now has a student population of some 7,000. It has extensive new purpose-built accommodation including 750 residential places on the 14-acre campus overlooking the sea at Newtownabbey, a pleasant and quiet residential area. There is a scheme of residence with removal.

Further particulars and application forms, which must be returned by June 2, 1978, may be obtained by telephoning (0234) 65131, ext. 2243 or by writing to The Establishment Office, Ulster College, The Northern Ireland Polytechnic, Shore Road, Newtownabbey, Co. Antrim BT37 0QB.

Preston Polytechnic

Applications are invited for the following posts:

Lecturer II/Senior Lecturer in Industrial Sociology

Lecturer II in Social Administration

(specialist in personal social services)

Lecturer II in Politics

(major interest in public administration)

Lecturer II in Secretarial Studies

(2 Posts)

Salary scales (under review): Senior Lecturer £5,523-£6,447-£6,909; Lecturer II £3,744-£5,985.

Application forms and further particulars may be obtained from the Chief Administrative Officer (Staffing), Preston Polytechnic, Corporation Street, Preston PR1 2TQ, to whom completed applications should be returned by May 24th.

THE POLYTECHNIC WOLVERHAMPTON

Deputy Librarian

and Head of Reader Services

(new post)

Applications are invited from qualified librarians with wide experience at a senior level in academic libraries.

Salary: Principal Lecturer £6,447-£6,909; Lecturer II £3,744-£5,985 (under review).

Further particulars and application forms, from The Establishment Office, The Polytechnic, Wolverhampton WV3 2LY.

THE POLYTECHNIC HUDDERSFIELD

Recruitment

Department of Further Education Staff Development. Ref. ACA/205/178

PRINCIPAL LECTURER OR SENIOR LECTURER IN METHODS OF TEACHING MANAGEMENT SUBJECTS AND EDUCATIONAL MANAGEMENT

Applications are invited from graduates, preferably with a higher degree, who are qualified teachers with experience in further education. The teaching programme of the person appointed will include:-

1. Methods of teaching courses in Management subjects to 1st year and in-service students courses.
2. The Management of Education module in the Diploma in F.E. and on specialist short courses.

Experience of teaching on Masters courses and of supervising research will be important additional qualifications. A principal lecturership is available for a suitable applicant. Staff are expected to undertake activities, including research, in addition to teaching duties.

Salary: PL £6,432 to £7,134 (bar) to £8,070 per annum. SL £5,523 to £6,447 (bar) to £8,909 per annum. All inclusive of salary supplements.

Further details and application forms, which should be returned by June 2, 1978, from the Establishment Office, The Polytechnic, Queensgate, Huddersfield HD1 3DH (Telephone 0484 22289, ext. 2228).

Bristol Polytechnic BSc Technology with Industrial Studies

A four year sandwich course combining Engineering and Business Studies. Entry requirements are 'A' level Mathematics and one other relevant 'A' level e.g. Economics, Geography or O/N/O/N/O Technology.

Further details from: Admissions Officer, Bristol Polytechnic, Coldharbour Lane, Frenchay, Bristol BS16 1QV. Tel: (0272) 656261

PRINCIPAL LECTURER IN LAW

£7,047-£7,818 (Bar)-£8,844

The successful applicant will be responsible for the preparatory work leading to the establishment of the course for the proposed new Part II examination of The Law Society and for the administration of the course subsequent to its establishment. Applicants should possess an honours degree in law, have relevant teaching experience, and be qualified solicitors.

Further details and form of application from The Chief Administrative Officer, Trent Polytechnic, Burton Street, Nottingham. Closing date 31st May, 1978.

TRENT POLYTECHNIC NOTTINGHAM

KINGSTON POLYTECHNIC KINGSTON REGIONAL MANAGEMENT CENTRE

Applications are invited for three posts at LECTURER II/ SENIOR LECTURER level:

Lecturer II in BUSINESS POLICY

Lecturer II in BEHAVIOURAL SCIENCE

Lecturer II in MANUFACTURING POLICY and OPERATIONS MANAGEMENT

Successful candidates will join a staff team teaching on a range of postgraduate and professional courses with opportunity for undertaking consultancy and applied research projects. Candidates should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

Further details and application forms (to be returned by June 1) from Academic Registry Dept. A9, Kingston Polytechnic, Penryn Road, Kingston upon Thames KT1 2EE. Tel: 8134 1000.

LANCASHIRE THE POLYTECHNIC FACULTY OF ENGINEERING DEPARTMENT OF SYSTEMS AND CONTROL

Applications are invited for the following posts: LECTURER in SYSTEMS and CONTROL, from suitable graduates with a higher degree and/or experience in the field of systems and control. The successful candidate will be responsible for the teaching of the course in Systems and Control, and will also be responsible for the supervision of research projects. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LEICESTER THE POLYTECHNIC SCHOOL OF PHYSICS AND ASTRONOMY

RESEARCH ASSISTANT

Applications are invited for a Research Assistant in the School of Physics and Astronomy. The successful candidate will be responsible for the supervision of research projects and will also be responsible for the teaching of the course in Physics and Astronomy. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LONDON, E.C.3 THE POLYTECHNIC DEPARTMENT OF PHYSICS

RESEARCH ASSISTANT

Applications are invited for a Research Assistant in the Department of Physics. The successful candidate will be responsible for the supervision of research projects and will also be responsible for the teaching of the course in Physics. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

MANCHESTER THE POLYTECHNIC DEPARTMENT OF PHYSICS

RESEARCH ASSISTANT

Applications are invited for a Research Assistant in the Department of Physics. The successful candidate will be responsible for the supervision of research projects and will also be responsible for the teaching of the course in Physics. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LONDON, N.W.4 THE POLYTECHNIC DEPARTMENT OF PHYSICS

RESEARCH ASSISTANT

Applications are invited for a Research Assistant in the Department of Physics. The successful candidate will be responsible for the supervision of research projects and will also be responsible for the teaching of the course in Physics. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

PRESTON THE POLYTECHNIC DEPARTMENT OF PHYSICS

RESEARCH ASSISTANT

Applications are invited for a Research Assistant in the Department of Physics. The successful candidate will be responsible for the supervision of research projects and will also be responsible for the teaching of the course in Physics. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

TRENT POLYTECHNIC DEPARTMENT OF PHYSICS

RESEARCH ASSISTANT

Applications are invited for a Research Assistant in the Department of Physics. The successful candidate will be responsible for the supervision of research projects and will also be responsible for the teaching of the course in Physics. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

WOLVERHAMPTON THE POLYTECHNIC DEPARTMENT OF PHYSICS

RESEARCH ASSISTANT

Applications are invited for a Research Assistant in the Department of Physics. The successful candidate will be responsible for the supervision of research projects and will also be responsible for the teaching of the course in Physics. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

YORK POLYTECHNIC DEPARTMENT OF PHYSICS

RESEARCH ASSISTANT

Applications are invited for a Research Assistant in the Department of Physics. The successful candidate will be responsible for the supervision of research projects and will also be responsible for the teaching of the course in Physics. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

BIRMINGHAM POLYTECHNIC DEPARTMENT OF PHYSICS

RESEARCH ASSISTANT

Applications are invited for a Research Assistant in the Department of Physics. The successful candidate will be responsible for the supervision of research projects and will also be responsible for the teaching of the course in Physics. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

SHEFFIELD POLYTECHNIC DEPARTMENT OF PHYSICS

RESEARCH ASSISTANT

Applications are invited for a Research Assistant in the Department of Physics. The successful candidate will be responsible for the supervision of research projects and will also be responsible for the teaching of the course in Physics. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LIVERPOOL POLYTECHNIC DEPARTMENT OF PHYSICS

RESEARCH ASSISTANT

Applications are invited for a Research Assistant in the Department of Physics. The successful candidate will be responsible for the supervision of research projects and will also be responsible for the teaching of the course in Physics. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

GLoucester POLYTECHNIC DEPARTMENT OF PHYSICS

RESEARCH ASSISTANT

Applications are invited for a Research Assistant in the Department of Physics. The successful candidate will be responsible for the supervision of research projects and will also be responsible for the teaching of the course in Physics. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LONDON THAMES POLYTECHNIC SCHOOL OF MECHANICAL ENGINEERING

Applications are invited for the following posts: LECTURER in MECHANICAL ENGINEERING, from suitable graduates with a higher degree and/or experience in the field of mechanical engineering. The successful candidate will be responsible for the teaching of the course in Mechanical Engineering, and will also be responsible for the supervision of research projects. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LONDON, E.C.3 THE POLYTECHNIC DEPARTMENT OF PHYSICS

RESEARCH ASSISTANT

Applications are invited for a Research Assistant in the Department of Physics. The successful candidate will be responsible for the supervision of research projects and will also be responsible for the teaching of the course in Physics. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

MANCHESTER THE POLYTECHNIC DEPARTMENT OF PHYSICS

RESEARCH ASSISTANT

Applications are invited for a Research Assistant in the Department of Physics. The successful candidate will be responsible for the supervision of research projects and will also be responsible for the teaching of the course in Physics. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LONDON, N.W.4 THE POLYTECHNIC DEPARTMENT OF PHYSICS

RESEARCH ASSISTANT

Applications are invited for a Research Assistant in the Department of Physics. The successful candidate will be responsible for the supervision of research projects and will also be responsible for the teaching of the course in Physics. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

PRESTON THE POLYTECHNIC DEPARTMENT OF PHYSICS

RESEARCH ASSISTANT

Applications are invited for a Research Assistant in the Department of Physics. The successful candidate will be responsible for the supervision of research projects and will also be responsible for the teaching of the course in Physics. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

TRENT POLYTECHNIC DEPARTMENT OF PHYSICS

RESEARCH ASSISTANT

Applications are invited for a Research Assistant in the Department of Physics. The successful candidate will be responsible for the supervision of research projects and will also be responsible for the teaching of the course in Physics. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

WOLVERHAMPTON THE POLYTECHNIC DEPARTMENT OF PHYSICS

RESEARCH ASSISTANT

Applications are invited for a Research Assistant in the Department of Physics. The successful candidate will be responsible for the supervision of research projects and will also be responsible for the teaching of the course in Physics. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

YORK POLYTECHNIC DEPARTMENT OF PHYSICS

RESEARCH ASSISTANT

Applications are invited for a Research Assistant in the Department of Physics. The successful candidate will be responsible for the supervision of research projects and will also be responsible for the teaching of the course in Physics. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

BIRMINGHAM POLYTECHNIC DEPARTMENT OF PHYSICS

RESEARCH ASSISTANT

Applications are invited for a Research Assistant in the Department of Physics. The successful candidate will be responsible for the supervision of research projects and will also be responsible for the teaching of the course in Physics. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

SHEFFIELD POLYTECHNIC DEPARTMENT OF PHYSICS

RESEARCH ASSISTANT

Applications are invited for a Research Assistant in the Department of Physics. The successful candidate will be responsible for the supervision of research projects and will also be responsible for the teaching of the course in Physics. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LIVERPOOL POLYTECHNIC DEPARTMENT OF PHYSICS

RESEARCH ASSISTANT

Applications are invited for a Research Assistant in the Department of Physics. The successful candidate will be responsible for the supervision of research projects and will also be responsible for the teaching of the course in Physics. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

GLoucester POLYTECHNIC DEPARTMENT OF PHYSICS

RESEARCH ASSISTANT

Applications are invited for a Research Assistant in the Department of Physics. The successful candidate will be responsible for the supervision of research projects and will also be responsible for the teaching of the course in Physics. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LONDON THAMES POLYTECHNIC SCHOOL OF MECHANICAL ENGINEERING

RESEARCH ASSISTANT

Applications are invited for a Research Assistant in the Department of Physics. The successful candidate will be responsible for the supervision of research projects and will also be responsible for the teaching of the course in Physics. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

Colleges and Institutes of Technology

NAPIER COLLEGE OF COMMERCE AND TECHNOLOGY

Faculty of Professional Studies

SENIOR LECTURER (A) IN ECONOMICS

Salary on Scale £7,078-£8,078 (Bar)-£8,844. The successful candidate will be responsible for the teaching of the course in Economics, and will also be responsible for the supervision of research projects. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LECTURER (A) IN ECONOMICS

Salary on Scale £6,447-£6,909 (Bar)-£7,752. The successful candidate will be responsible for the teaching of the course in Economics, and will also be responsible for the supervision of research projects. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LECTURER (A) IN BANKING AND INSURANCE

Salary on Scale £6,447-£6,909 (Bar)-£7,752. The successful candidate will be responsible for the teaching of the course in Banking and Insurance, and will also be responsible for the supervision of research projects. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LECTURER (A) IN PERSONNEL MANAGEMENT

Salary on Scale £6,447-£6,909 (Bar)-£7,752. The successful candidate will be responsible for the teaching of the course in Personnel Management, and will also be responsible for the supervision of research projects. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LECTURER (A) IN BIOCHEMISTRY/CELL BIOLOGY

Salary on Scale £6,447-£6,909 (Bar)-£7,752. The successful candidate will be responsible for the teaching of the course in Biochemistry/Cell Biology, and will also be responsible for the supervision of research projects. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LECTURER (A) IN DATA PROCESSING

Salary on Scale £6,447-£6,909 (Bar)-£7,752. The successful candidate will be responsible for the teaching of the course in Data Processing, and will also be responsible for the supervision of research projects. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LECTURER (A) IN MEDICAL SCIENCE

Salary on Scale £6,447-£6,909 (Bar)-£7,752. The successful candidate will be responsible for the teaching of the course in Medical Science, and will also be responsible for the supervision of research projects. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LECTURER (A) IN POLYMER TECHNOLOGY

Salary on Scale £6,447-£6,909 (Bar)-£7,752. The successful candidate will be responsible for the teaching of the course in Polymer Technology, and will also be responsible for the supervision of research projects. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LECTURER (A) IN ELECTRONIC AND/OR COMMUNICATION ENGINEERING

Salary on Scale £6,447-£6,909 (Bar)-£7,752. The successful candidate will be responsible for the teaching of the course in Electronic and/or Communication Engineering, and will also be responsible for the supervision of research projects. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LECTURER (A) IN PHYSICS

Salary on Scale £6,447-£6,909 (Bar)-£7,752. The successful candidate will be responsible for the teaching of the course in Physics, and will also be responsible for the supervision of research projects. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LECTURER (A) IN CHEMISTRY

Salary on Scale £6,447-£6,909 (Bar)-£7,752. The successful candidate will be responsible for the teaching of the course in Chemistry, and will also be responsible for the supervision of research projects. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LECTURER (A) IN MATHEMATICS

Salary on Scale £6,447-£6,909 (Bar)-£7,752. The successful candidate will be responsible for the teaching of the course in Mathematics, and will also be responsible for the supervision of research projects. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LECTURER (A) IN HISTORY

Salary on Scale £6,447-£6,909 (Bar)-£7,752. The successful candidate will be responsible for the teaching of the course in History, and will also be responsible for the supervision of research projects. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LECTURER (A) IN GEOGRAPHY

Salary on Scale £6,447-£6,909 (Bar)-£7,752. The successful candidate will be responsible for the teaching of the course in Geography, and will also be responsible for the supervision of research projects. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LECTURER (A) IN PSYCHOLOGY

Salary on Scale £6,447-£6,909 (Bar)-£7,752. The successful candidate will be responsible for the teaching of the course in Psychology, and will also be responsible for the supervision of research projects. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LECTURER (A) IN SOCIOLOGY

Salary on Scale £6,447-£6,909 (Bar)-£7,752. The successful candidate will be responsible for the teaching of the course in Sociology, and will also be responsible for the supervision of research projects. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LECTURER (A) IN POLITICAL SCIENCE

Salary on Scale £6,447-£6,909 (Bar)-£7,752. The successful candidate will be responsible for the teaching of the course in Political Science, and will also be responsible for the supervision of research projects. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LECTURER (A) IN LITERATURE

Salary on Scale £6,447-£6,909 (Bar)-£7,752. The successful candidate will be responsible for the teaching of the course in Literature, and will also be responsible for the supervision of research projects. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LECTURER (A) IN ARTS

Salary on Scale £6,447-£6,909 (Bar)-£7,752. The successful candidate will be responsible for the teaching of the course in Arts, and will also be responsible for the supervision of research projects. The successful candidate should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4,101-£7,752 + £409 London allowance.

LECTURER (A) IN MUSIC

Study, 37 Queens Gate, London SW7 3JH; 01-834 7802.

